CUSP: Four Corners Regional Initiative

DE-FE0032363

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CUSP Annual Meeting Panel Discussion
September 2024

Project Participants/Industry

- Funding Profile
- Project Performance Dates:

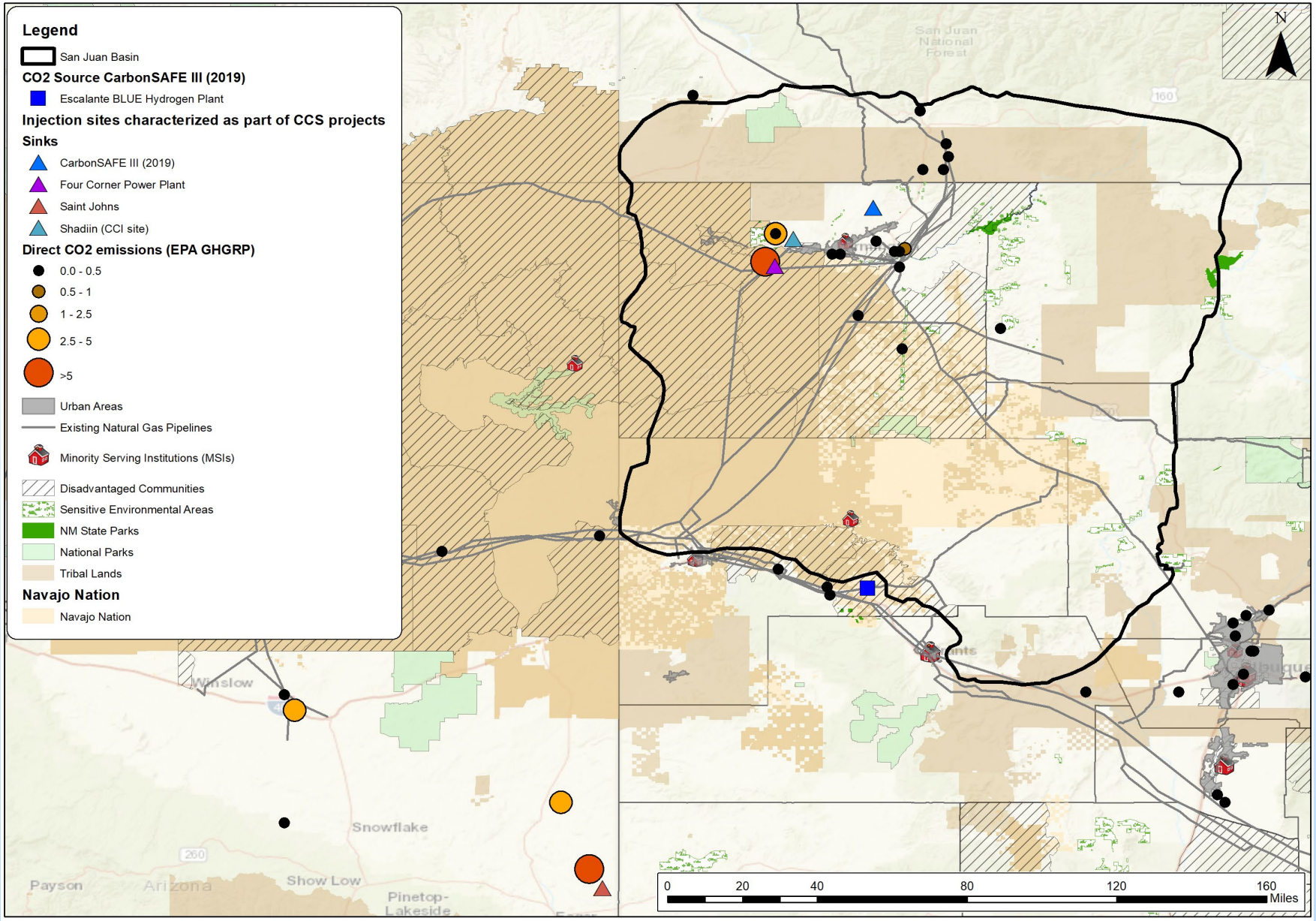
10/01/2024– 09/30/2026

Key Project Facts

This project will provide technical and engagement support for stakeholders within the Four Corners region to develop a framework to accelerate the establishment of Carbon Management Hub.

The Four Corners Regional Initiative will primarily focus on New Mexico, Arizona and Colorado.

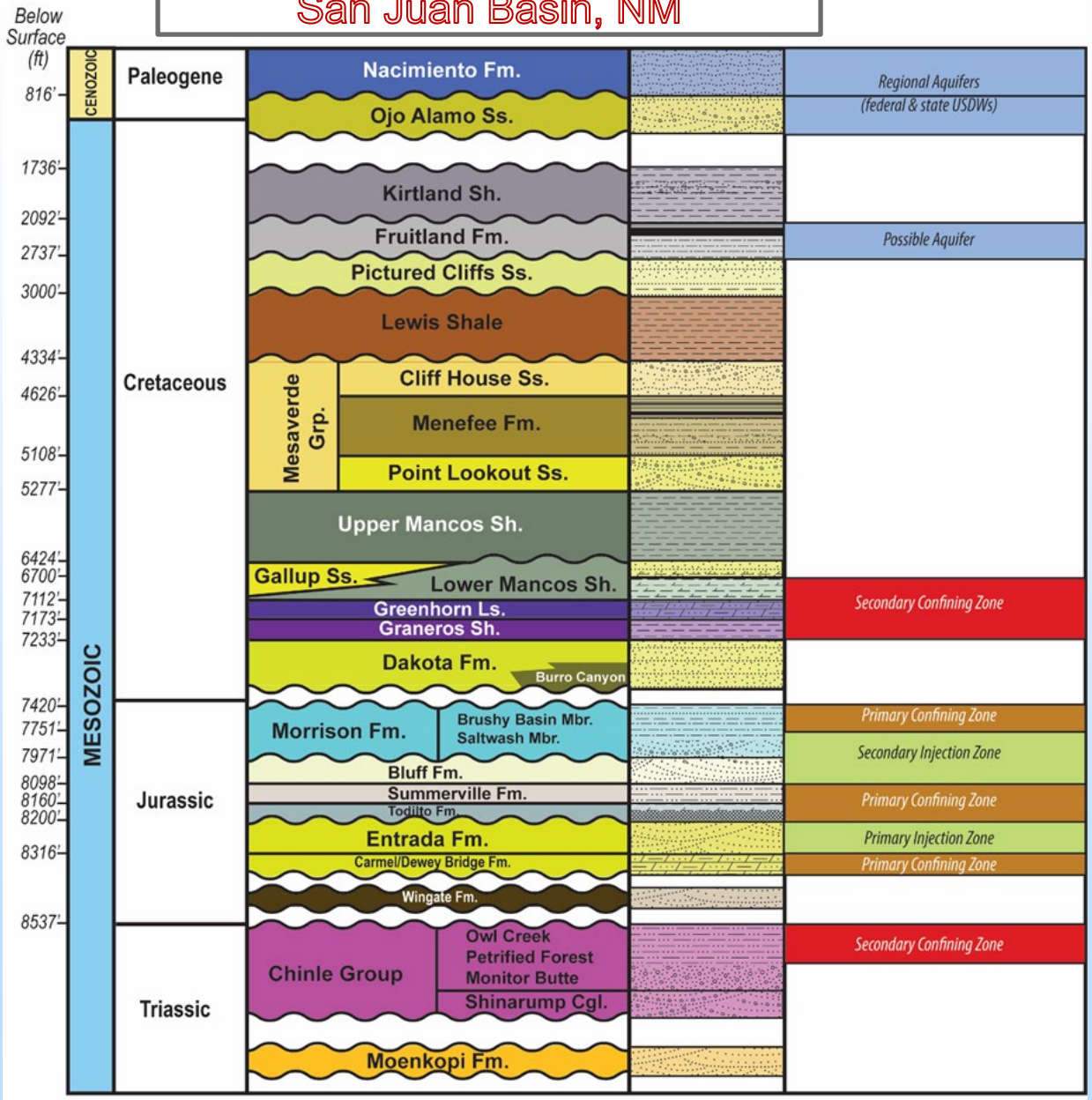
Four Corners Carbon Management Hub (FCCMH)



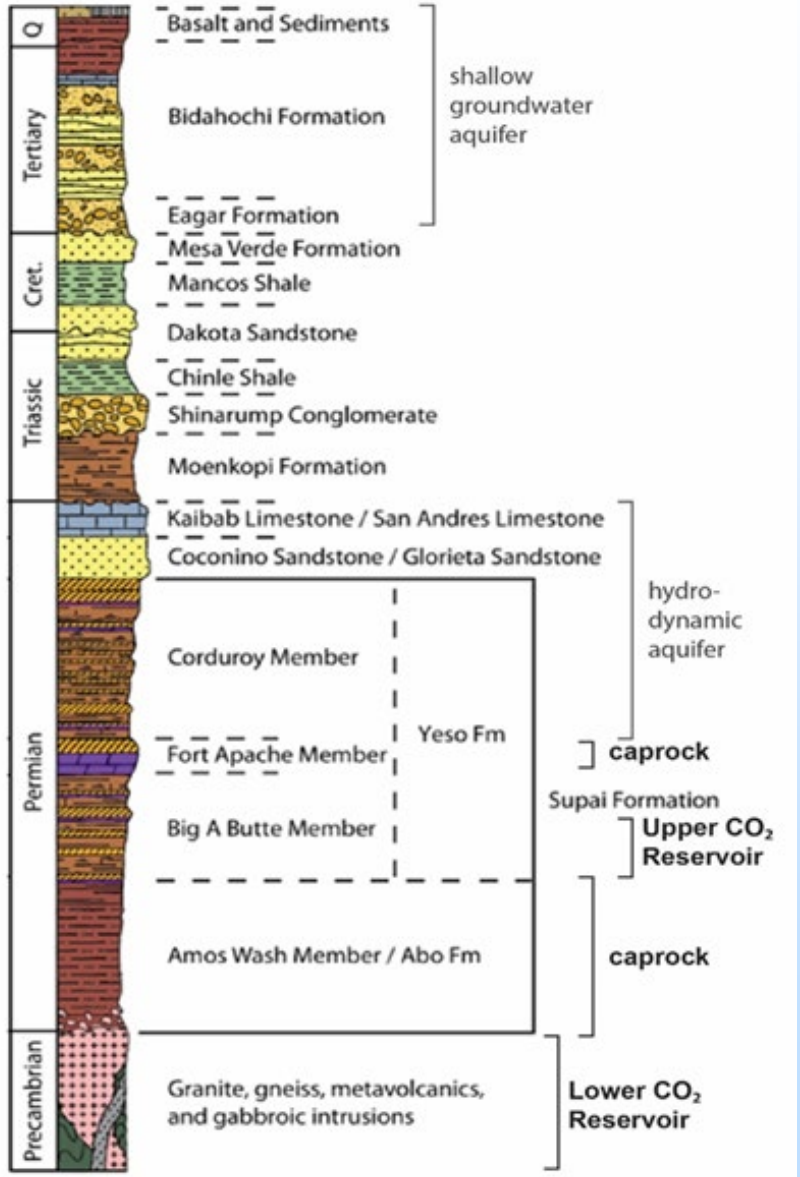
- CUSP Four Corners Regional Initiative (this project)
- SJB CarbonSAFE Phase III project (2020)
- Four Corners Carbon Storage Hub (2024)
- Four Corners Power Plant Integrated CCS Project (2024)
- Southwest DAC Hub (2024)

Storage Complex @ FCCMH

San Juan Basin, NM



St. John's CO2 Dome, AZ



SJB CarbonSAFE Project Facts

Key Project Facts

- Perform Site Characterization of storage complex within San Juan Basin
- Source CO2 from Escalante H2 plant, located in Prewitt, NM, USA.
- Initial UIC Class VI permit submitted in 2023
- Community and stakeholder outreach on CCS technology and its benefits

Characterization Plan

- Drilled characterization well, perform injectivity tests
- Recovered ~ 450 ft of Core, sampled drilling cuttings, advanced log suites measurements
- Perform suites of laboratory experiments and numerical models
- Purchased 100 sq.miles 3D seismic, acquire 3D VSP,
- Installed DAS/DTS/DSS Optical fiber behind casing

St. John's Dome Project Facts

Key Project Facts

- Part of the Southwest DAC Hub led by Arizona State University
- St. Johns Dome (SJD) field located in Apache County, Arizona (AZ)
- Proton Green is the project developer
- Perform Site Characterization of storage complex and submit a UIC Class VI permit to EPA
- Community and stakeholder outreach on CCS

Characterization Efforts

- Detailed site characterization data from several wells
- Utilized FMI from 11 wells to map and perform analysis on existing fractures
- Interpreted existing 2D seismic lines
- Existing core samples

Potential CO2 Sources from Power Plants

Four Corners Storage Hub Project Facts

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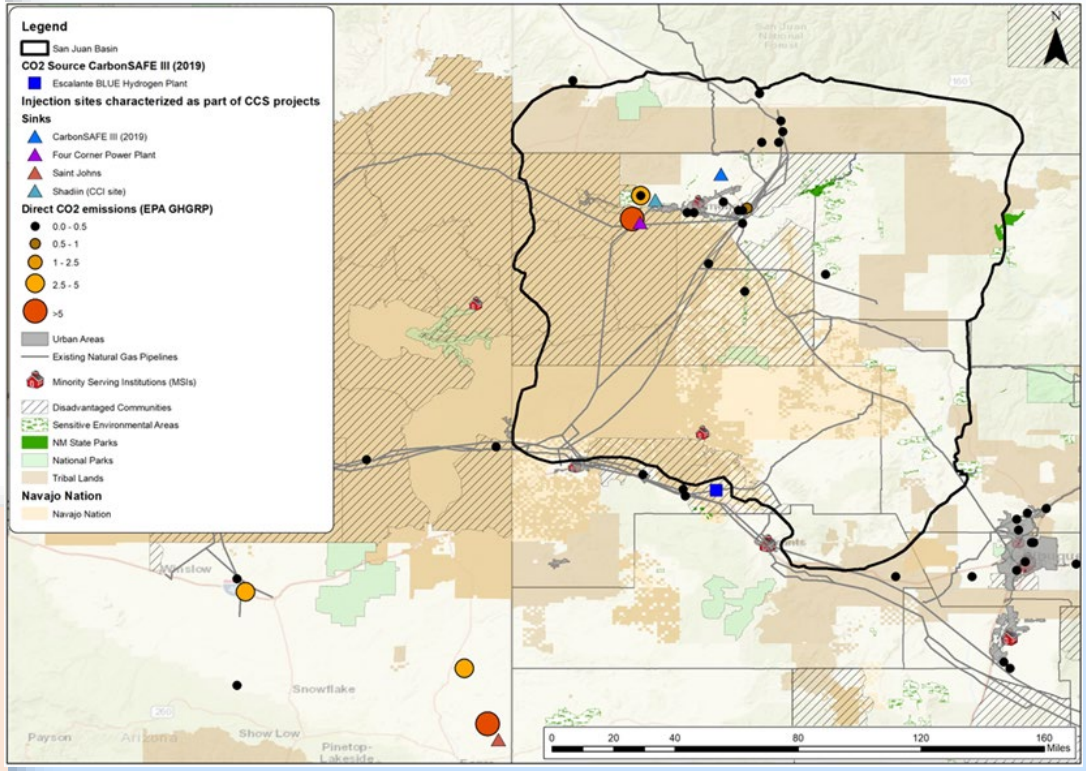
Key Project Facts

- Perform Site Characterization of 3 storage sites within San Juan Basin
- Source CO2 from Four Corners Power Plant (FCPP) emits at least 10 million metric tons and others. This project will provide direct storage option which has implication for the FCPP
- Prepare and submit Underground Injection Control (UIC) Class VI applications for identified sites
- Meet Environmental requirements for characterization work and integrated project
- Execution of the Community Benefits Outcomes and Objectives (CBOO).



Characterization Plan

- Drill 2 characterization wells
- Acquire ~ 1000 ft of Core, sampled drilling cuttings, advanced log suites measurements, fluid sampling
- Re-enter one additional well to acquire well logs and other information
- Acquire two approximately 29 mi^2 3D seismic, license 53.725 miles 2D seismic lines
- Perform suites of laboratory experiments and numerical models to support UIC VI applications

Synergistic Approach

- The project will investigate any potential competition among CO2 storage, saltwater disposal, hydrogen storage, helium production and geothermal for underground pore space.

- The project team will propose a synergistic approach to conduct stacked storage with hydrogen in a shallower formation and CO2 storage in a deeper reservoir)

- The project will explore pore space management strategies between the CO2 storage and saltwater disposal, enhanced mining recovery and rare earth elements accumulation from produced waters with CO2 storage for both New Mexico and Arizona.

Project Facts Sheet

CUSP: Four Corners Regional Initiative

Lead/Prime Organization: The Petroleum Recovery Research Center (PRRC) at the New Mexico Institute of Mining and Technology (New Mexico Tech)

Industries: Tucson Electric Power Company, Salt River Project (SRP), Navajo Agricultural Products Industry, Proton Green LLC, Red Cedar Gathering Company, Enchant Energy and Tallgrass Energy

Location of Lead: Socorro, New Mexico

Project Purpose

Our goal is to collect, integrate, and analyze relevant data for the region, developing a framework for carbon management that will increase the readiness of the region to participate in the global transition to a clean energy economy.

Focus Areas

- Improve understanding of geological formations for carbon storage
- Assess risk for effective and safe permanent CO_2 storage
- Collaborate with direct air capture initiatives
- Educate public and stakeholders on carbon management

Research Highlights

- Capture approximately 6 to 7 million metric tons of CO_2 emissions from industrial facilities and power plants
- Improving understanding of regional geological formations for carbon storage, including saline aquifers and stacked storage complexes
- Deploying integrated carbon management projects to capture and store significant CO_2 volumes annually

Project Impacts and Benefits

- Accelerate onshore CCS technology deployment
- Assemble a uniform and accessible database of existing and new CCS data
- Identify technical challenges and develop readiness indices for CCS deployment
- Promote technology transfer and advanced carbon capture solutions

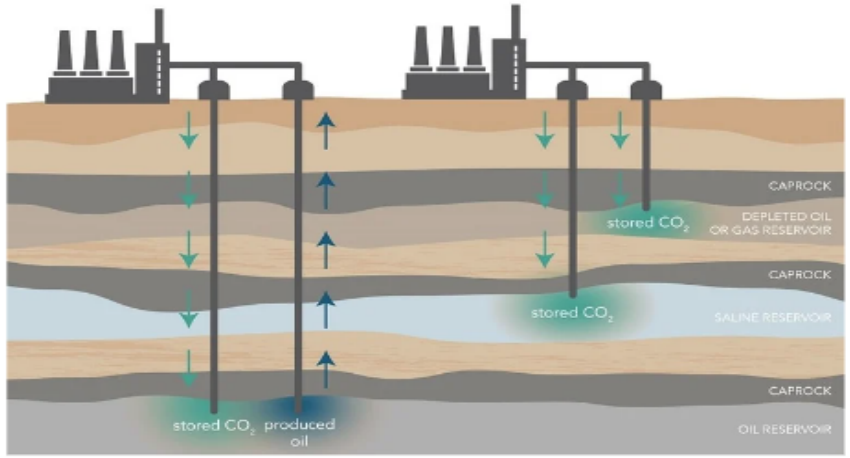


Image provided by Gemini Solutions Inc.

The diagram shows the process of capturing CO_2 from industrial sources, transporting it via pipelines, and injecting it into underground geological formations for storage, thereby preventing its release into the atmosphere.

Factories/Industrial Plants: The buildings at the top of the image represent industrial plants or factories where carbon dioxide (CO_2) is produced.

Pipelines: The vertical lines extending from the factories into the ground represent pipelines used to transport CO_2 from the surface to underground storage sites.

Stored CO_2: The green areas labeled "stored CO_2" indicate the locations where CO_2 is being stored underground. These storage sites can be:

- Depleted Oil or Gas Reservoir: A geological formation that has previously been used for extracting oil or gas and now serves as a storage site for CO_2.
- Saline Reservoir: A deep underground reservoir containing saline water, used for storing CO_2.

Caprock: Layers of impermeable rock that act as a seal to prevent CO_2 from escaping from the storage reservoirs. These layers are crucial for ensuring the long-term containment of stored CO_2.

Oil Reservoir: A geological formation that contains oil, where CO_2 can be injected to enhance oil recovery.

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